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ABSTRACT

A general increase in the demand for workplace basic skills mirrors the general increase in societal basic skills demands. As a result, many adults are participating in second-chance basic skills education. Second-chance basic skills programs are offered by a wide variety of providers, but populations actually served by programs rarely amount to more than a tiny fraction of estimated target populations. For the most part, basic skills instruction in the United States is provided by part-time teachers and volunteers. Levels of training and certification among instructors are often low. Second-chance basic skills programs have not done very well at either attracting or retaining a significant number of learners. High quality instruction helps a good deal, but a significant amount of time is needed for even the best programs to have an impact; and no program reports holding average learners as long as even 100 hours per year. Most of the funding for programs is provided by the states. During the past few years, there have been a number of promising new developments related to second-chance basic skills education. Among them are an increase in the number and sophistication of workplace basic skills programs and the increasing potential of technology to help overcome some of the problems that have plagued basic skills education. Multistrand basic skills programs are one of the possible program alternatives. Such an approach offers varying solutions to varying problems. Policy options should be considered for increasing and improving adult basic skills programs. (62 references) (KC)

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5. SECOND CHANCE BASIC SKILLS EDUCATION

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Millions of Americans find they need a second chance to improve or refurbish their basic literacy and computational skills. In part, this is due to a gap between the basic skills abilities needed to be productive in the workplace and the ability levels of a significant percentage of workers. Skills demands of many jobs have increased while a large proportion of very low skilled jobs have disappeared or shifted to nations where labor is less expensive (Johnston & Packer, 1987). The picture is complicated by the fact that technology has also created some very visible minimum wage, no-skill jobs from which advancement is unlikely.

The general increase in the demand for workplace basic skills mirrors the general increase in societal basic skills demands. Newspaper wire service stories, like the majority of reading material in the workplace, average high school level in difficulty (Mikulecky, 1987). The average worker uses print material 2-3 hours daily on the job (Mikulecky, 1982) and faces comparable print demands in life's other roles (i.e. consumer, citizen, parent, patient, student, church-member, etc.).

Many adults find that their basic reading, writing, computation and problem-solving skills are insufficient for life's current demands. They enroll in no-charge basic skills programs -- some attempting to complete high school educations, others to brush up on skills in a

specific area, and still others struggle to keep ahead of their own school age children. All are partaking of second chance basic skills education.

Individuals needing second chance basic skills education range from recent high school graduates with poor educations to drop outs to mature adults facing retraining in mid-career. The target population encompasses Americans who are employed, underemployed, and unemployed. Its members potentially include the tens of millions of adults who, over the past four decades, either dropped out of school or managed to graduate with basic skill abilities below the current demands of the workplace. To these millions are added the growing millions of Americans for whom English is a second language. A disproportionate percentage of those needing second chance basis skills are Blacks and Hispanics from low economic backgrounds and schools with low success records.

Programs and Populations

Second chance basic skills programs are offered by a wide variety of providers. The vast majority of these programs are free to users. Most learners are served by federally and state funded adult basic education (ABE) classes held in settings which include school buildings, community centers, correctional institutions, YMCA's and shopping centers. During a one month period in the Spring of 1985, a survey was made of state funded adult literacy programs in the fifty states and Washington D.C. During that month, over 729,000 adults were reported as receiving services (Bowker, 1987). Since there is a good deal of turn-

over among learners in adult basic skills programs, the total number of learners served in programs over the period of a full year is likely to be considerably higher.

Comprehensive national demographic data are not available on who attends these basic skills classes. The Literacy Assistance Center, however, has compiled data on the 40,000 learners involved in basic skills programs in New York City (Cook, 1986). Data from a large urban center can provide some indication of who attends classes, at least in urban centers. Of the 40,000 New York City learners, nearly 52 percent were enrolled in basic education classes while another 45 percent were enrolled in classes to teach English as a second or other language.[1] Of the basic education students, 10.7 percent are reported to read below a third-grade level and 25.3 percent read below a fifth-grade level. In New York City, 41 percent of students are male and 59 percent female. The typical learner is likely to be female, a member of a minority group (89 percent), and between the ages of 25 and 45 (52 percent). One third of learners are between the ages of 16 and 24.

In addition to state funded ABE programs, adults with low basic skills are served by volunteer organizations, private industry programs, college and university sponsored basic education, and basic skills classes attached to job training programs. Several programs are also offered informally by private citizens and community and church organizations (Cross, 1984; Hunter & Harman, 1979). No full census of learners has been done and a complete census of all programs is probably impossible since many programs keep inadequate records either as a result of low funding or to insure learner anonymity. A recent public

policy report estimates that as many as 3-4 million learners may be served by the total of all public and private, formal and informal programs (Chisman, 1989).

Potential Populations vs Served Populations.

Most program reports in the research literature estimate potential local learner populations by extending estimates of the percentage of functional illiterates taken from national studies. Depending on the literacy level selected as constituting functional literacy and the study cited, national figures of adults experiencing literacy difficulty range from 20 million to over 40 million. Examples of typical local estimate projections from these national data include 90,000 functional illiterates projected in Delaware County, Pennsylvania (Gaul, 1985) to over two million adults needing literacy assistance estimated in the state of Illinois (Illinois Community College Board, 1987).

Populations actually served by programs rarely amount to more than a minuscule fraction of estimated target populations. Percentages of low literates served range from less than one percent reported by California and Washington State programs (Lane, 1984; and Carbone, 1987) to nearly five percent of targeted population served reported by a local Reno, Nevada program (Bear, 1987).

There are several problems with using national population estimates of illiteracy to determine local populations of low literates. Initially, some locations vary considerably from national averages. For example, the percentage of low literates in Louisiana or Mississippi or Texas is nearly triple that of Utah (Brizius & Foster, 1987). Secondly,

the criteria for being a member of the target population may be inappropriate. Several researchers recommend caution in determining who needs literacy education help. For example, Fingeret (1983) maintains that many low literates use social networks of friends and relatives to help them with daily basic skills demands and therefore may not need additional help. Other researchers argue that simply because someone has managed, through the help of others, to function in society does not mean that they are productive, safe, or guaranteed to continue functioning (Mikulecky, 1987).

Though conclusions about need are arguable, it does seem clear that many adults do not perceive themselves as needing or wanting help. Strong indications about low self-perception of need for help among low literates has been cited by Jones (1988) in reference to Canadians. The Canadian version of the recent U.S. national assessment of adult literacy (Kirsch and Jungeblut, 1986) added an item asking adults if they thought they needed help with literacy. The Canadian study (Calamai, 1987) found that nearly 90 percent of adults who failed the test thought they didn't need help (Jones, 1988). This does not, of course, mean that adults who score poorly on basic skills tasks do not need help. It simply means that they are not likely to seek help since they don't perceive themselves as needing it.

Evidence for Unmet Needs.

Even though estimates of potential low literates needing help are questionable, evidence does indicate a significant need for second chance basic skills instruction. The 1985 survey of adult literacy

programs cited earlier (Bowker, 1987), reports an average of 30 percent of programs have waiting lists. In urban areas 47 percent of programs report waiting lists. The lists average over sixty individuals per program which is nearly 35 percent of average program size. In such programs, for every three learners inside, there is an adult outside asking for help. Skagen (1986) reports that inadequate funding forced the state of Illinois to turn away nearly as many potential learners as the 117,000 it served.

Another indication of the gap between service and need is demonstrated in a Pennsylvania state report (Pennsylvania Association for Adult Continuing Education, 1981). More adolescents drop out than adult low literates are served each year. Further, it is unlikely that more than a small fraction of adults served actually reach a high level of basic skills competence. During 1979-80, 29,000 adults of all ages were served by the state adult basic skills programs. During the same time period, 31,000 adolescents dropped out of Pennsylvania high schools. Though figures are likely to vary from state to state, we may be falling further behind in basic skills education each year.

A third indicator of the gap between existing service and demand can be seen in the rapid growth of voluntary literacy programs. The number of learners served by the Literacy Volunteers of America in 1987-88 was 28,005, a 47 percent increase over the past two years (Wright, 1989). Waiting lists reported by practitioners suggest that the demand has not yet been met.

Professional Instructors and Volunteers

For the most part, basic skills instruction in the United States is provided by part-time teachers and by volunteers. For FY 1985-86, the U.S. Office of Adult Education reports that service was provided by over 82,000 instructors in its programs. Of these instructors, only 8 percent were full time while 67 percent were part-time and 25 percent were volunteers (Pugsley, 1987).

Paid Instructor Qualification and Training.

Levels of training and certification among instructors is quite low (Harman, 1985). Skagen (1986) notes that most paid ABE instructors are moonlighting elementary and secondary teachers who have no special training in teaching adults. Chall, Heron & Hilferty (1987) observe that staff turnover is very high, most instructors hold more than one job, and some shuttle between two or more local literacy centers. Instructors who have little training upon entering programs are unlikely to get much new training from the programs which employ them. Monies for travel and inservice rarely exceed one percent of total literacy program budgets (Vorst, 1988; Illinois Community College Board, 1987). Because resources are spread thinly, part-time instructors often work alone without immediate supervision and are thus even cut-off from co-worker's informal instruction.

Volunteer Tutors Level of Participation and Training.

A 1985 survey of volunteer use indicates that volunteer tutors were used, to some degree, by nearly half of state and federally funded

adult education programs and nearly all local adult literacy programs (Bowker, 1987). The vast majority (92 percent) serve as one-on-one tutors while 39 percent teach small groups, and 8 percent teach classes. The contribution of these volunteers in terms of time and energy is significant. The Literacy Volunteers of America report having nearly 29,000 volunteers who averaged 50 hours of service per volunteer during 1987-88. The Literacy Volunteers of America report nearly a thousand more tutors than learners. This suggests that not all tutors are equally involved and some may be inactive (Wright, 1988).

Volunteers typically receive from 10-15 hours of training, a good deal of which is directed toward pragmatic issues such as where materials are located, where to meet with learners and how to contact supervisors. There is considerable concern that such meager training is insufficient when one must work with individuals having severe learning problems. For example, most programs (86 percent) offer one-on-one basic literacy instruction to low literates below the fourth grade reading level (Bowker, 1987). Paid teachers are more likely to teach classes while volunteers work with individuals. Indeed 92 percent of volunteer tutors work mainly with individuals. Very low literates, however, are extremely likely to have <u>severe</u> learning problems. Keefe and Meyer (1988) used a battery of professional diagnostic tests to screen 114 adult learners in an Adult Basic Education program. Of low literates below the third-grade reading level, over 70 percent had uncorrected or uncorrectable vision problems and half had auditory discrimination problems which confounded their abilities to learn to read.[2] These sorts of learner problems are not easily diagnosed by

untrained volunteers and often frustrate teaching techniques learned in superficial training.

Program Effectiveness

Second chance basic skills programs document effectiveness using a variety of indicators. Among these indicators are ability to recruit and retain learners, tested achievement gains of learners, and progress toward employment or other learner identified goals.

Recruitment and Retention.

Second chance basic skills programs have not done very well at either attracting or retaining a significant number of learners. Recruitment appears to be improving, but there is no current evidence for improved retention.

Though current media campaigns have helped in the recruitment of adult learners, the general consensus among adult educators is that personal sources like teachers, counselors, friends, and relatives are more effective for recruitment than impersonal sources like the media (Balmuth, 1988). Carbone (1987) reports that even in the light of a national television literacy awareness campaign, only 17 percent of clients in Washington State programs reported becoming aware of literacy help through the media. Teachers, counselors, social-welfare agencies as well as friends and relatives were all ranked higher by learners as resources of knowledge about programs. Fowler (1986), working for the Center for Survey Research at the University of Massachusetts, performed a survey of adult literacy programs and resources for the Coalition for

Literacy. The initial impact of literacy advertising in the mid-1980's is evident in increases of approximately 9 percent in both learners and budgets between the autumns of 1984 and 1985. During the same time period, there was a 28.7 percent increase in volunteer tutors. It may be that media advertising is more effective in recruiting tutors than those needing basic skills help.[3]

Retaining learners long enough for programs to have an impact is a major problem (Balmuth, 1988). Military data (Sticht, 1982) and large program data such as that of New York City (Denny, 1988) indicate that it takes an average of approximately 100 contact hours for a learner to improve a single grade level. Military programs described by Sticht (1982) are usually much more intensive (i.e. approximately 20 hours per week) than traditional Adult Basic Education programs which provide 2-3 hours of instruction to a learner per week. Less intensive programs have been sometimes identified as exemplary, however, and demonstrated the ability to accomplish the equivalent of one year's gain in approximately 50 hours (Darling, 1984; Pasch & Oakley, 1985).

High quality instruction helps a good deal, but a significant amount of time is needed for even the best programs to have an impact. No program in the literature reports holding average learners as long as even 100 hours per year. It takes several hundred hours of learning time to move a learner from sounding out words on road signs to a being able to comprehend most newspaper stories. In typical state funded ABE programs, learners voluntarily attend two to three hours per week with high rates of absenteeism. Only 20 percent of learners persist a year

or longer (Darkenwald & Valentine, 1985; Development Associates, 1980; Diekhoff & Diekhoff, 1984; Pasch & Oakley, 1985).

Programs without state funding and only volunteer tutors may fare even worse. The Literacy Volunteers of America report having approximately one tutor for each learner. The organization estimates that tutors averaged 50 hours of contributed time during 1987-88. This estimate would indicate that most learners receive less than an hour of instruction per week. An alternative explanation would be that most learners leave volunteer tutoring programs well before 50 hours and a few others receive more attention. In either case, low learner attendance times in volunteer tutoring programs suggest major learner gains are unlikely.

Diekhoff (1988) analyzed the records of 194 former participants in a community-based adult literacy program in Texas. The program was above average in effectiveness in that the average reading gain from entry to exit was 1.6 grade levels in 9.8 months. Diekhoff finds the significance of the gain questionable, however, since few learners left the program able to function with normal reading demands. The author identified only 12 percent of learners who exited reading above the 7.5 grade level. A 7.5 grade level doesn't qualify one to read very much. The sports page of most newspapers averages about an eighth grade reading level while wire service stories and most job-related materials are much more difficult (Wheat, Lindberg & Nauman, 1977; Mikulecky, 1982). Less than 5 percent of the 194 learners would have been able to accurately summarize a wire service newspaper article. Even so, in order to reach or exceed the 7.5 grade level, the 24 students needed to

improve an average of 4.2 years in ability and averaged 23.5 months in the program. Attending literacy program sessions regularly for two years is beyond the performance of nearly all learners currently enrolled in programs.

Data on learner gain in measured competence is difficult to find. It is much more typical for programs to report effectiveness in terms of general statements. For example, the Commonwealth of Pennsylvania reports that for 1985, 29,409 learners were enrolled in programs and 25,531 or 87 percent of learners met their personal objectives. What the personal objectives might be or how meeting them was determined is not clear (Pennsylvania Department of Education, 1986).

Sometimes the reports seem to contradict themselves. For example, the same Pennsylvania Commonwealth report indicates that nearly 45 percent of learners entered programs with the goal of passing the GED test. Later in the same report, only 13.3 percent of learners are listed as passing the GED test. This seems to contradict the earlier contention that the vast majority of learners had met their personal objectives. It is possible, of course, that learner objectives may have changed. In the Commonwealth of Pennsylvania, 66 percent of adult learners are reported as improving in basic skills. What that means in terms of improved learner functioning is not clear, though 6 percent of learners reported finding jobs and nearly 8 percent entered other education and training programs (Pennsylvania Department of Education, 1986).

Funding and Cost-Effectiveness.

Bowker (1987) reports that 83 percent of literacy instruction was received by adults in state funded adult education programs. Funding in such programs comes primarily through the federal Adult Education Act of 1966 with amendments in 1978 to extend services throughout the public and private sector. The Adult Education Act provides mainly federal funding (90 percent) with a required 10 percent state contribution of funds (Delker, 1984). In 1985, this amounted to approximately $81 million (Congress of the United States, 1987).

In May of 1986, a congressional staff study was undertaken to analyze the Literacy Management Information Project Report (LMIPR) which claimed to itemize federal funding for adult literacy programs. The LMIPR indicated that there are 79 literacy-related programs administered by 14 federal agencies and that $347.6 million was spent on adult literacy activities in 1985. In order to verify the LMIPR report, the committee made telephone surveys of the 79 literacy-related program directors and randomly contacted 20 state directors. A good deal in the LMIPR figures appears to be questionable. The congressional study found that:

- Of the 79 programs in 14 federal agencies reported in the LMIPR, only ten programs (13 percent) in five federal agencies reported actually conducting literacy activities.
- Several programs reported receiving no funding for literacy programs.

- In FY 1985, only $126.5 million or 36 percent of the reported $347.6 million was spent of literacy activities for adults (Congress of the United States, 1987).

The Canadian government spends considerably more, per capita. The Canadian population is approximately 10 percent the size of the U.S. population. Rosemary Sparks of the Ontario Ministry of Skills Development (1989) reports that the Canadian federal government is scheduled to spend $110 million on adult literacy in 1989. Instead of the 10 percent matching funds provided by most U.S. states, Canadian provinces provide significant funding for adult literacy at the provincial level. Ontario, for example, will spend $50 million on adult literacy programs in 1989. If the same ratio of spending were present in the United States, adult literacy budgets between one and two billion dollars would be in order.

Funding for most Adult Basic Education programs in the United States is usually a combination of state and federal monies augmented by a variety of contributed resources. Though many programs rely almost entirely on state and federal support, some programs are able to generate additional resources and accomplish a good deal more than state and federal funding could possibly support alone.

An example of this type of expanded support can be found in the Lafayette Adult Reading Academy (LARA) which recently won a U.S. Department of Education award for Outstanding Adult Education. In 1987, the LARA provided nearly 50,000 learner contact hours and nearly 7000 hours of paid instruction. Over 800 learners averaged 58 hours of contact per year at an average cost of $4.59 per hour or $266 per

registrant. Federal and state monies of approximately $55,000 covered administrative costs and salaries of the Academy's part-time teaching staff. The Academy staff has extended its resource base by developing additional resources. They have:

1) trained 150 volunteer tutors,
2) solicited grants from Target, Alcoa, and Pillsbury for offering specialized on-the-job literacy training, and
3) received small donations of money, materials, and goods from local businesses, agencies, school corporations, clubs and individuals (Vorst, 1988).

Most adult basic skills programs have narrower support, rely more heavily on state and federal funding, and work with fewer learners.

Reported costs per learner in other programs are of the same order of magnitude as the Lafayette program though the cost per instructional hour is often slightly less. Average learner costs per year in New York and Nevada are $272 and $184 respectively and costs per hour of instruction are $1.85 and $2.60 respectively (New York State Education Department, 1986; Bear, 1987). Higher program costs per hour of instruction in the Lafayette program can be attributed to more highly trained and expensive instructors, to instructors' time spent helping write grant proposals to generate resources, and non-instructional time spent training and supervising volunteer tutors.

Another perspective on Adult Basic Education costs is to compare them to the costs of private tutoring and of public school education. The International Reading Association (Committee reports..., 1989) reports results of a survey of private reading clinics and tutoring

services. The average private service charges from $21 to $30 per hour of individual basic skills instruction. A year's worth of instruction at 3 hours per week would cost from $3276 to $4680. The public schools spend an average of $4000 per child each year (Chisman, 1989). This purchases approximately 1000 hours of instruction per year in classes of 25-30 students at a cost of approximately $4.00 per instructional hour. Adult Basic Education programs are not able to provide anywhere near 1000 hours of instruction per year for each learner. The instructional hour cost of providing one-on-one or small group instruction in Adult Basic Education centers is close to or below public schools costs for providing large group instruction, however. The cost of adult basic education is a minuscule fraction of private tutoring or public schooling costs. The ineffectiveness of much adult basic education instruction may well be a "you get what you pay for" phenomenon with some magnificent exceptions to the general rule.

Cost Effectiveness of Volunteer Tutoring.

Volunteer tutors have contributed a significant amount of time to helping others learn to read. It is not clear how effective they have been compared to social expectations or even compared to paid instructors. Because volunteers provide their time without charge, policymakers sometimes conclude that volunteers are a simple and cheap solution for adult literacy problems.

There are, however, significant costs in providing volunteer tutoring. For example, volunteers must be properly recruited and trained and trainers of volunteers must themselves be trained. Moreover

volunteers must be supervised and supported by experts and other professional personnel -- especially when dealing with low literates with severe learning disabilities (Harman, 1985). In addition, they need to be provided with appropriate instructional materials, provided workspace, evaluated, and provided help in solving tutoring problems. A ratio of one supervisor to four volunteer tutors is commonly needed (Woods Gordon, 1988).

Often the resources invested in recruiting, training, and developing volunteer tutors has limited impact. Many tutors work with only one or two learners during a year and then leave programs. The dropout rate among tutors is quite high, so recruiting and training resources are often wasted. Rogers (1984) notes that one Literacy Volunteers of America program trained 244 tutors in a six year period. At the end of that period, 91 percent of tutors had dropped out of the program. For the most part, each year sees a new contingent of untrained tutors with only a few carry-over tutors.

In summary, since the effectiveness of volunteer tutors is unclear, the cost-effectiveness is not possible to determine. It is clear, however, that volunteer tutoring programs are not cost-free and, given the high dropout rates of tutors, may not be particularly cost-efficient. There may be intangible benefits to volunteer tutor programs in terms of tutor's heightened sensitivity and awareness of literacy problems.

Impact on Earnings.

No controlled study exists to substantiate the relationship of basic skill improvement to improve earning ability. Program reports at local levels sometimes identify numbers of individuals who have found employment and left programs, but no study identified by this author causally links such employment or improved earning ability to basic skills improvement. No study was found to compare new employment of basic skills students to that of a control group receiving no instruction.

Broadly based correlational studies do identify a clear relationship between basic skill levels and income (Berlin & Sum, 1988). Mikulecky and Strange (1986) describe an intensive, integrated basic skills/wordprocessor training program in which 70 percent of participants moved from receiving state support to earning $20,000+ per year on jobs as word processor operators. Entrance to the program involved passing several screening tests. Program participants were paid to take training for 40 hours per week for up to 26 weeks. Participants were only released from the program to apply for jobs when they demonstrated basic and technical skills equivalent to the average word processor operator in the local area. This required most participants to improve the equivalent of 3 grade levels in reading and writing abilities during the 6 month period of training. Participants of this intensive program received more training in two weeks than 90 percent of adult basic education students receive per year. They received more training in 26 weeks than most basic skills program participants would receive in 13 years were they to attend that long.

New Directions: Technology and Workplace Literacy

During the past few years, there have been a number of promising new developments related to second chance basic skills education. Among these are an increase in the number and sophistication of workplace basic skills programs and the increasing potential of technology to help overcome some of the problems which have plagued basic skills education.

Multi-Strand Basic Skills Programs in the Workplace.

There appear to be at least three major workplace basic skills problem areas -- each calling for a slightly different solution. These problem areas relate to:

1) extreme low level literates (i.e. those unable to function independently with even simple print),
2) new and experienced workers who can read at a moderate level (i.e. as high as the sports page), consider themselves to be literate, but derive little benefit from expensive training because of insufficient reading, computing and study abilities, and
3) workers at nearly all ability levels who make some job related literacy mistakes which influence safety, productivity, and promotability (Mikulecky and Drew, 1989).

The first problem area listed is the area involving the smallest number of workers (below 5 percent) and is yet foremost in the public mind. Surveys of corporate literacy training indicate that up to 25 percent of major corporations fund basic education training and that this percentage appears to be increasing (Lusterman, 1977; Mikulecky &

Cousin, 1982; Baar-Kessler, 1984). This training for very low skilled workers ranges from in-plant basic education programs (BCEL, 1987) to funding for employees to attend community basic skills education and G.E.D. classes.

The second problem area (i.e. low basic skills which limit the effectiveness of technical training) is less recognized but effects a larger percentage of workers. The vast majority of workers in many industries hold high school diplomas and don't perceive themselves as having basic skills difficulties. Management expectations of increased training and performance, however, often reveal that worker self-perceptions are inaccurate. For example, a recent survey of a manufacturing concern (Mikulecky, 1988) revealed that over a half million dollars was spent on yearly training for 700 employees. For hourly employees, most of whom had graduated from high school, training involved taking specialized courses from a local technical college. Nearly 20 percent of hourly employees were unable to meet the technical college's minimal reading and mathematics entrance requirements (approximately an 8th grade level of achievement).[4] Most of these workers considered themselves to have no basic skills problems, but their tested reading and math abilities were below minimum levels needed for successful on-going training. One in as many as four or five hourly workers may be ill prepared to benefit from required technical training.

The third area of basic skills problems (i.e. literacy and math mistakes related to safety, productivity, or promotability) can happen at any level. Literacy task analysis or literacy audits of key job tasks may be required to determine the extent to which literacy based

mistakes are endangering lives or costing money (Mikulecky, 1985; Drew & Mikulecky, 1988; U.S. Departments of Education and Labor, 1988). Henry and Raymond (1982) identify literacy and math related safety mistakes to be the major literacy problem reported by employers. Literacy related productivity problems relate to mistakes (i.e. the need to redo correspondence or other paperwork) and inability to implement new productivity innovations. For example, low literacy levels can limit the productivity of quality circle meetings in which hourly employees address productivity and quality control problems. These meetings are used in many industries and are designed to increase the responsibility of workers in spotting problems and developing solutions. To encourage open discussion, it is often desirable for management to be absent from meetings. At such meetings, notes are taken and key ideas submitted in written form. At a major manufacturing concern, nearly 25 percent of quality circle groups had no employee capable of taking and writing notes which could communicate to a person not attending the meeting (Mikulecky, 1988). Similar problems occur with suggestion boxes or federal "whistle-blower" programs which request workers to submit written ideas about safety infractions or improved productivity.

Most worksites experience all three of the above problem areas. It is unlikely that a single approach will solve all problems. What is called for is a multi-strand approach. Such an approach offers varying solutions to varying problems.

The most prevalent strand is designed for low level literates. Such workers need long term support with improving their basic skills. It may take several hundred hours of instruction before a worker who can

barely read a product label is able to trouble shoot using a manual for computerized equipment.[5] Economic support for basic education is one way that employers can help provide such long term support. Some employers also offer in-plant basic skills programs with time contributed by both employer and worker. Such programs have the advantage of making workplace materials more easily accessible to instructors and communicating to workers the value management places upon a capable workforce.

The second workplace literacy program strand is directed toward middle level literates who are ill equipped for technical training. The needs of these workers can often be addressed by integrating basic skills training with technical training. Technical schools and in-plant instructors can organize class periods to briefly teach such study skills as how to use textbooks or how to take notes related to the technical material covered. On a regular basis, technical and vocational instructors can use 10-15 minute sessions to demonstrate how to take notes or gather key information from a text. Technical instructors can also be taught to make use of the host of tested ideas available to content area reading specialists (i.e. developing study guides, pre-teaching key concepts, individualized assignments, alternate readings, etc.). Trainers find that they must work increasingly with workers who have been away from school for decades or workers who didn't learn much in school when they attended. Many of these trainers have previously worked with self-starters and individuals who knew how to learn (mainly college educated managers or workers on professional or semi-professional tracks). The implication here is clearly that

trainers of hourly workers may need to receive some retraining in their own right in teaching workers basic learning skills along with technical skills.

The final workplace literacy training strand is directly related to local safety and productivity issues. It implies a careful analysis of the key workplace tasks involving basic skills and is likely to lead to custom-designed materials and training. Such analyses may identify areas where workers need training, documents which need to be redesigned, or job descriptions which need to be rewritten. Several suggestions for how to develop such a strand have appeared in print (Mikulecky, 1985; Cornell, 1988; Drew & Mikulecky, 1988; U.S. Departments of Education and Labor, 1988). All involve some form of on-site analysis and diagnosis of the tasks, strategies, and materials needed to perform competently.

Technology and Second Chance Basic Skills Education.

Duffy (1985) has described in some detail effective computer and video-disc technology used for basic skills simulations in military programs. Though quite expensive, these military applications appear to be effective. There are promising possibilities inherent in using computer and video technology to devise expert systems to model and diagnose difficulties with a variety of basic skills tasks. Turner (1988) and Young & Irwin (1988) have documented the high value adults place upon such computer learning benefits as privacy, feedback, flexibility and control. The ability to teach when the learner rather than the teacher is available is extremely attractive. Though a good

deal of promising research is currently in process at this writing, we have much to learn about the effectiveness and limits of technological basic skills training. The difficulty is in separating the inherent strengths and limitations of the technology from the weaknesses inherent in poorly designed instructional programs.

Cost Effectiveness of New Basic Skills Training Methods.

No coherent body of research exists on the cost effectiveness of technology driven basic skills education and of workplace basic skills training. Some evidence, however, suggests these new approaches may be very effective. Sticht (1982) has documented that learners who master basic skills with material related to their jobs retain most of what they've learned while more than half of gains made with ordinary learning material disappear within eight weeks.[6] Some initial work has attempted to estimate the cost of low level literacy to society in general and to business in particular.

Newspaper accounts and some survey information suggest that worker literacy mistakes cost a great deal in dollars and injuries (Hymowitz, 1981; Henry & Raymond, 1982). Kozol (1985) has attempted to draw broad inferences on the national cost to the U.S. of functionally illiterate adults and the Canadian Business Task Force on Literacy (1988) has attempted more systematic estimates of costs to Canadian business and society. A survey of Canadian expert opinion and projections from known costs place estimated illiteracy costs to Canadian business at four billion dollars annually. Using the traditional 10:1 population ratio for U.S.A./Canadian conversions, this would suggest a figure approaching

forty billion dollars annually for the United States. Societal costs, including fractions of costs for incarceration and social insurance programs, are estimated at ten billion dollars annually in Canada ($100 billion by extension to the U.S.A.).

No systematic attempt has been made, however, to determine the cost of workplace literacy deficiencies in terms of:

- o accidents and mistakes;
- o lost worker time while avoiding print and seeking oral information; and
- o lost manager time in terms of repeating oral explanations.

Such base-line information is needed to determine the cost-effectiveness of training.

A related issue considered by business training departments is who is worth training. Traditionally, educators have taken the position that everyone should learn as much as possible and the role of the educator is to teach and facilitate that learning. Workplace training is often concerned with the cost/benefit ratio of training. Military research (Sticht, 1982) indicates that a grade level gain in reading ability takes approximately 100 hours of engaged literacy training time. Focussing on job specific training can cut the time but ability gains may be limited somewhat to job specific reading materials (Sticht, 1987). More research needs to be done to determine the amount and types of literacy training required for needed worker improvement and upon the cost effectiveness of a mixture of training, redesigning materials, and redesigning jobs.

Problems and Policy Options

Second chance basic skills education is not very effective in the United States for a variety of reasons which can be addressed with the policy options outlined below. If the underfunded and relatively ineffective system were maintained at present levels, the 1985 funding level of $126.5 million would need to be increased to $153.9 for 1990 based on a 4 percent average inflation rate. If the same system were simply made available to the 30 percent of adults on waiting lists, the funding level would need to be increased to $200.1 million.

Simply continuing with current programs is not a wise choice, however. Among the problems of current programs are:

1) Extremely low enrollment of target populations into programs.
2) Significant waiting lists in existing programs.
3) Inability to retain in programs the vast majority of learners long enough to make a significant functional difference in skill levels.
4) The uneven quality of instruction (i.e. learners in effective programs learn at double the average rate).
5) Lack of knowledge about several key aspects of basic skills education (i.e. effectiveness of volunteers and technology, impact on productivity and safety, etc.).

Two publications, Enhancing Adult Literacy by Brizius and Foster (1987) and Jump Start by Chisman (1989), have effectively outlined state and federal policy options in relation to basic skills education. Many of

the ideas suggested in this document are drawn from these two publications.

Addressing Enrollment and Retention.

Low enrollment and retention in basic skills programs are the result of several factors. Many low literates don't perceive themselves as needing help and don't choose to seek help even if they admit to difficulties. Others are unaware of the availability of help or lack the experience and confidence to seek help. Many learners who want help are prevented from receiving it by program waiting lists, lack of transportation, or lack of childcare. The slow progress attached to only 2-3 hours of weekly instruction or low quality instruction disheartens learners and leads to attrition.

Incentives.

Incentives for learners and program providers can be created by restructuring requirements for many existing state and federal programs. Social support for individuals who fall below low skill criterion levels can be more closely tied to being in training programs and making progress (Brizius & Foster, 1987). Indeed, increased support could be linked to increases in learner skill levels and phased out as steady employment provides higher income. Several states have already implemented or begun discussing incentive and mandatory requirement programs of one sort or another.

Some of these approaches could be models for federal policy options. Governor Ashcroft of Missouri has proposed a "Learnfare"

program which would require AFDC parents who haven't completed high school to enroll in basic education and job search programs. Virginia has instituted a "no read, no release" program in which reading to a 6th grade level is an important element in considering probation requests. North Carolina has considered whether it should refuse to hire drop outs who are not seeking further education. Some states are considering school completion or enrollment in an educational program as a condition for receiving a driver's license (Brizius & Foster, 1987). Recent media reports also suggest that West Virginia's plan to revoke driver's licenses of drop-outs below the age of eighteen may have lowered drop out rates by 30 percent.

Program providers should also face incentives for increasing enrollment and retention of basic skills learners in appropriate programs. Local applicants for state or federal social service funding can be given special consideration if they develop cooperative strategies for agencies to provide transportation, day care, and basic skills education to targeted learners. Decisions for funding can also be weighted in favor of programs which involve community groups and other social agencies in identifying and referring learners. Many of these incentives can be developed using existing monies and clearer guidelines for funding applicants.

Tax incentives for businesses and individuals can increase the recruitment and retention of learners in basic skills programs. Industries with a high percentage of displaced workers or other adjustment problems can be targeted with tax support for basic skills programs. Expanding tax credits for on-the-job training to include a

wider range of basic skills activities could encourage increased workplace basic skills programs. The overall cost of these efforts would be determined entirely by which industries were targeted and what degree of tax incentive were allowed. These incentives should be linked to guidelines which require significantly more training than the ineffective 2-3 hours weekly training now provided in most government funded programs. Tax incentives could also be developed to enable employers to raise salaries as workers improve in skill levels. Sometimes incentives can be brought about by simply redirecting current taxes. For example an unemployment insurance program in California allows employers to redirect a portion of unemployment insurance payments to a special fund for retraining current workers.

Increased Direct and Indirect Service.

Few basic skills education services are provided directly by state or federal government. Exceptions are state and federal delivery of services in correctional institutions, some vocational programs, and some military programs. For these programs, increased funding to reduce program waiting lists and to enhance recruitment is in order. In addition, more direct basic skills education service could be provided by existing programs. For example, at the state level, many programs have taken on educational and referral roles with clients. Natural resource agencies in 38 states have included literacy training as an integral component of Civilian Conservation Corps type programs. In Tennessee, unemployment insurance counselors use special guides to diagnose and refer low literate applicants. In Vermont, unemployment

checks are accompanied by cards recruiting basic skills learners. Similar programs could be instituted by federal agencies or encouraged by federal incentives.

The majority of federal basic skills support is indirect through Adult Basic Education, Adult Vocational Education, and Job Partnership Training Act funding.[7] In addition, the federal government claims indirect literacy support through 14 federal agencies which have been reported to fund 79 literacy related programs. The congressional analysis of the government listing suggests the majority of programs cited do not yet offer literacy support and many program directors are unaware that they are expected to offer basic skills support. Only 36 percent of the budgeted money claimed appears to be actually used for basic skills support. Clearer bureaucratic communication and administration could go a long way toward using allocated funds more effectively. Chisman (1989) suggests the most profitable targets for increased funding and/or clearer guidelines for accountability are the Job Partnership Training Act, the Carl D. Perkins Vocational Education Act, the Adult Education Act, the Family Support Act, the Even Start Program, and Volunteers in Service to America.[8] In all of these programs, emphasis should be placed upon solutions which provide a significant amount of contact to learners in need of basic skills training and monitor learner gain. Two to three hours of training per week is not sufficient, in most cases, to make acceptable learner gains. Suggested additional funding levels for the programs mentioned above are: 1) Additional $100 million to J.P.T.A. for large workplace literacy demonstration programs, 2) Additional $64 million to the Adult

Education Act State Grant program to bring funding to the $200 million approved for FY 1989, 3) Fund Even Start at the $35 million level, and 4) Add $3 million to VISTA funding for innovative use of voluntary programs. These suggested figures are drawn from the computations done to produce Jump Start (Chisman, 1989).

Increasing the Quality of Knowledge and Instruction.

Adults learn in ways significantly different from children (Valentine, 1987). School learning is considerably different from workplace learning (Mikulecky, 1982). We know very little, however, about how adults with low basic skills best learn. We also have very little information on the limits of training with low literate adults or the impact of improved basic skills on productivity and safety. We know that in terms of learner gain, the best programs are twice as effective as average programs, but we have little evidence on the best ways to move average and below average programs toward excellence.

Policy Options for Increasing Knowledge.

Policy options for increasing research knowledge about improving adult basic skills include:

- ear-marking larger amounts of currently allocated Department of Education and Department of Labor research funding to target adult basic skills issues ($7 million);
- establishing a National Center for Adult Literacy (Chisman, 1989) which would conduct basic and applied research, provide technical assistance to professionals and

policymakers, and maintain a national data base to monitor the field ($30 million); and

- o providing incentives for business to sponsor research of the effectiveness of basic skills training within specific industries.

Policy Options for Improving Quality of Instruction:

Improving the quality of instruction is a more difficult policy issue. Since few basic skills providers are directly employed by the federal government, direct intervention is usually not possible. Low quality instruction is probably related to:

- o low instructor pay which is correlated to high turn-over rates and low levels of instructor training;
- o minimal on-the-job training for instructors; and
- o the lack of connection between learner improvement and program funding.

Policy options for improving instructor and program quality include:

- o Developing incentives for learner improvement. These could include merit bonuses for programs with high demonstrated learner improvement and evidence of significant learner improvement as one criteria for refunding programs;
- o Increasing funding availability to programs who hire full time reading and basic skills specialists;

- o Require that 2-3 percent of program budget proposals be allocated to state approved inservice training of instructors.

A portion of this could be provided at the state level as part of coordinated efforts for instructor improvement.

These incentives could be accomplished by adding 10 percent to program funding to be used for incentive bonuses. If no additional funding is available, base-line program funding could be reduced by 10 percent with the remaining funds allocated on the basis of merit and competitive instructor training proposals.

NOTES

1. The percentage of learners taking English as Second Language classes is probably considerably lower nationally. Urban areas, Florida, and the Southwest United States do considerably more English as Second language teaching than does the rest of the nation.

2. Though Keefe and Meyer did not test extensively for other learning disabilities, anecdotal information from instructors is suggests that the considerable number of children in schools with learning disabilities do not disappear as adults. In a workplace literacy study performed by this author (Mikulecky & Strange, 1986), the learning of more than 20% of workers in an in-plant remedial program was inhibited by side-effects from persistently prescribed medication or perceptual and long-term memory problems.

3. Oral reports from Dr. Anabel Newman and from the national literacy Contact center suggest that advertising's impact on learner recruitment may be increasing. No published data illuminate this point. As stated earlier, the Literacy Volunteers of America do report approximately 3 percent more tutors than learners (Wright, 1988).

4. The employer reporting 20 percent of hourly workers reading and computing below an eighth grade level hired few workers without high school diplomas. The most recent National Assessment of Educational Progress for adult literacy (Kirsch & Jungeblut, 1986) indicates that approximately 20 percent of <u>all</u> young adults read below an eighth grade level. It is likely that industries having higher percentages of hourly workers who are dropouts will have higher percentages reading below the cut-off point for extended technical training.

5. Given the severe learning problems of many low literate adults, it is highly likely that some adults will never be capable of using a computer manual to trouble shoot production problems.

6. Research does not document why learning with workplace materials is more effective. The most likely probabilities are that transfer, continued practice, and higher motivation are all much more possible when one learns with material one is likely to encounter daily.

7. The level of indirect support ranges from 90 percent of Adult Basic Education funding to 8 percent of JTPA funds which are to be allocated for remedial education of the unemployed. Funds are administered by a variety of agencies including state governments, Private Industry Councils, school systems, and private contractors.

8. The directions for these programs are discussed in some detail in Chisman (1989). For <u>JTPA</u> they include support of large scale demonstration to enhance workplace literacy and extending the reach of

present programs. For the Carl D. Perkins Vocational Education Act new directions include closer links between employer demands and the basic skill levels attained by students in funded programs. New directions for the Adult Education Act include enhancing state-wide coordination of basic skills programs, increasing quality and accountability levels, bringing education provisions from the expiring Immigration reform legislation into the Adult Education system, and relieving overwhelmed Adult Basic Education programs of responsibility for English as Second Language students.

REFERENCES

Balmuth, M. (1988). Recruitment and retention in adult basic education: What does the research say? Journal of Reading, 31, 620-623.

Bowker, R. R. (1987). Adult literacy programs: Services, persons served, and volunteers. In Bowker annual of library and book trade information. New York: R. R. Bowker, Inc., 397-403.

Bear, D. R. (1987). Project TACL: A team approach to community literacy. Reno, Nevada: Nevada University, Reno, College of Education.

Berlin, G. & Sum, A. (1988) Toward a more perfect union: basic skills, poor families, and our economic future. New York: Ford Foundation.

Brizius, J. & Foster, S. (1987). Enhancing adult literacy: A policy guide. Washington, D.C.: Council of State Policy and Planning Agencies.

Business Council for Effective Literacy. (1987). Job-related basic skills: A guide for planners of employee programs. New York: Author.

Calamai, P. (1987). Broken words: Why five million Canadians are illiterate. Toronto, Ontario: Southam Newspaper Group.

Canadian Business Task Force on Literacy. (1988). Measuring the costs of illiteracy in Canada. Toronto, Ontario: Author.

Carbone, G. J. (1987). The 1986 literacy tutor coordination program: A report to the legislature pursuant to chapter 312 laws in 1986. Olympia, Washington: Washington Office of the State Superintendent of Public Instruction.

Chall, J. S., Heron, E. & Hilferty, A. (1987) Adult literacy: New and enduring problems. Phi Delta Kappan, 69, 190-196.

Chisman, F. P. (1989). Jump start: the federal role in adult literacy. Southport, Connecticut: The Southport Institute.

Committee reports on reading services offered by businesses. (1989) Reading Today (a bi-monthly newspaper of the International Reading Association, Newark, Delaware), 6, no. 5, p.4.

Congress of the United States. (1987). An assessment of the federal initiative in the area of adult literacy. Staff report of the subcommittee on elementary, secondary, and vocational education of the committee on education and labor, U.S. House of Representatives, one-hundredth Congress. Washington, D. C.: House Committee on Education and Labor, (ED286072).

Cook, J. (1986). Final report: New York City adult literacy initiative. New York: Literacy Assistance Center.

Cornell, T. (1988). Characteristics of effective occupational literacy programs. Journal of Reading, 31, 654-657.

Darkenwald, G. & Valentine T. (1985) Outcomes of participation in adult basic skills education. Lifelong Learning, 8, 17-22.

Darling, S. (1984). Illiteracy: an everyday problem for millions. Appalachia, 18, 21-28.

Delker, P. V. (1984). Ensuring Effective Adult Literacy Policies and Procedures at the Federal and State Levels. Washington, D. C.: Office of Vocational and Adult Education (ED260281).

Denny, V. H. (1988). Analysis of New York City's 1986-87 data base. A paper presented at the National Reading Conference, Tucson, AZ, December, 1988.

Developmental Associates. (1980). An assessment of the state administered program of the adult education act. Final report. Arlington, VA: Developmental Associates.

Diekhoff, G. M. (1988). An appraisal of adult literacy programs: Reading between the lines. Journal of Reading, 31, 624-630.

Diekhoff, G. M. & Diekhoff, K. B. (1984). The adult literacy program attrition problem: identification at intake. Adult Literacy and Basic Education, 8, 34-47.

Drew, R. A. & Mikulecky, L. J. (1988). How to gather and develop job specific literacy materials for basic skills instruction. Bloomington, IN: The Office of Education and Training Resources, School of Education, Indiana University.

Duffy, T.M. (1985). Literacy instruction in the military. Armed Forces and Society, 11, 437-467.

Fingeret, A. (1983). Social network: A new perspective on independence and illiterate adults. Adult Education Quarterly, 33, 133-46.

Fowler, F. J. (1986). Survey of literacy resources: A report of methods and basic estimates. Boston: Center for Survey Research, University of Massachusetts.

Gaul, P. (1987). Evaluation of the effectiveness of work study students in extension and expansion of literacy services in Delaware County, Chester, PA. Harrisburg, PA: Pennsylvania State Department of Education (ED266273).

Harman, D. (1985). Turning Literacy Around: An Agenda for National Action. New York: Business Council for Effective Literacy.

Henry, J. F. & Raymond, S. (1982). Basic skills in the U.S. workforce. New York: Center for Public Resources.

Hymowitz, L. (1981). Employers take over where school failed to teach the basics. Wall Street Journal., Jan. 22, 1981, p. 1.

Illinois Community College Board. (1987). Fiscal year 1987 disadvantaged student grant report. Springfield, ILL.

Johnston, W. B. & Packer, A. E. (1987). Workforce 2000. Indianapolis, Indiana: Hudson Institute.

Jones, P. C. (1988). The good news about illiteracy. Toronto, Ontario: Business Task Force On Literacy.

Keefe, D. & Meyer, V. (1988). Profiles of and instructional strategies for adult disabled readers. Journal of Reading, 31, 614-619.

Kirsch, I. & Jungeblut, A. (1986). Literacy profiles of America's young adults. Princeton, New Jersey: National Assessment of Educational Progress at Educational Testing Service.

Kozol, J. (1985). Illiterate America. New Jersey: Anchor Press.

Lane, M. A. (1984). California literacy campaign program effectiveness review. Sacramento, CA: California State Library (ED263917)

Lusterman, S. (1977). Education in Industry. New York: Conference Board.

Mikulecky, L. (1982). Job Literacy: The relationship between school preparation and workplace actuality. Reading Research Quarterly, 17, 400-419.

Mikulecky, L. (1985). Literacy task analysis: Defining and measuring occupational literacy demands. A paper presented at the annual meeting of the American Educational Research Association, Chicago, IL, March 31, 1985, (ED262206).

Mikulecky, L. (1987). The status of literacy in our society. In J. Readance & S. Baldwin (Eds.), Research in literacy: Merging perspectives (pp. 211-235). New York: National Reading Conference, 36th Yearbook.

Mikulecky, L. (1988). Indiana Workplace Literacy Partnership. An unfunded proposal to the U.S. Department of Education, Washington, D. C.

Mikulecky, L. & Strange, R. (1986). Effective literacy training programs for adults in business and municipal employment. In J. Orasanu (Ed.) A decade of reading research: Implications for Practice. New Jersey: Lawrence Erlbaum Associates.

New York State Education Department. (1987). Adult literacy education program, New York State participant data for 1985-1986. Albany, New York: New York State Education Department, Division of Adult and Continuing Education (ED2860004).

Pasch, M. & Oakley, N. (1985). An evaluation study of project LEARN. Students and tutors 1982-1984. Paper presented at the 69th Annual Meeting of the American Educational Research Association, Chicago, Illinois.

Pennsylvania Association for Adult Continuing Education. (1981). Adult basic education and the welfare roles: an economic and social alternative. Harrisburg, PA (ED226106).

Pennsylvania Department of Education (1986). Adult basic education programs in the commonwealth of Pennsylvania. Harrisburg, Pennsylvania: Pennsylvania State Department of Education, Division of Adult Basic Education.

Pugsley, R. S. (1987). National Data Update. A presentation at the Annual Conference, State Directors of Adult Education, Washington, D.C., July 21, 1987.

Rogers, J. J. (1984). Maintaining volunteer participation in adult literacy programs. Lifelong Learning, 9, 22-24.

Rush, T., Moe, A. & Storlie, R. (1986). Occupational literacy. Newark, Delaware: International Reading Association.

Skagen, A. (Ed.) (1986). Workplace literacy. New York: AMA Membership Publications Division.

Sparks, R. (1989) Workplace literacy. A paper presented at Functional literacy: Conceptions and misconceptions of competence. University of Toronto, Toronto, Ontario, May 24, 1989.

Sticht, T. G. (1982). Basic skills for defense. Alexandria, VA: Human Resources Research Organization.

Stitch, T. G. (1987). Functional context education. California: Applied Behavioral and Cognitive Sciences, Inc.

Turner, T. (1988). Using the computer for adult literacy instruction. Journal of Reading, 31(7), 643-647.

U.S. Departments of Education and Labor. (1988). The bottom line: basic skills in the workplace. Washington, D.C.: Office of Public Information, Employment and Training Administration, Department of Labor.

Valentine, T. (1986). Issues central to the definition of adult functional literacy. (Contract No. OERI-P-86-3014). Unpublished manuscript presented to the U.S. Department of Education.

Vorst, J. (1988). Lafayette Adult Reading Academy Newsletter. Lafayette, IN: Lafayette Adult Reading Academy, Fall, 1988.

Wheat, T., Lindberg, M. & Nauman, M. (1977). An exploratory investigation of newspaper readability. Illinois Reading Council Journal, 5, 4-7.

Woods Gordon. (1988). Evaluation of literacy and basic skills initiatives. Toronto, Ontario: Ministry of Skills Development.

Wright, K. D. (January, 1989). Literacy volunteers of America. Update: A national newsletter for the adult literacy and the adult learning community. Washington, D.C.: U.S. Department of Education.

Young, D. & Irwin, M. (1988). Integrating computers into adult literacy programs. Journal of Reading, 31(7), 648-653.